

SURVEY HIGHLIGHTS AND PROCEDURES

The acreage of commercial citrus in Florida decreased to 797,303 acres from 832,275 acres in 2000. A net decrease of 34,972 acres has occurred in the past two years. During 2000 and 2001, a total of 42,225 acres was planted while 77,197 acres were removed.

Polk County is the leader with 100,202 acres of citrus, followed by Hendry with 94,139 and St. Lucie with 92,490. Hendry County continues to lead in total trees and tree density with 153 trees per acre. St. Lucie County has 122 trees per acre and Polk has 116. There has been a decline in acreage in 28 of the 33 citrus counties during the past two years.

Tree counts decreased from 106,678.7 in 2000 to the current 103,172.0 tree total for 2002. Hardee County had the largest increase (5.7%) from 6,116.5 trees in 2000 to 6,466.7 in 2002. Lee and Volusia counties had slight increases.

FLORIDA COMMERCIAL CITRUS ACREAGE

Census year	Orange	Grape-fruit	Specialty fruit	Total
1966	673,086	103,224	81,772	858,082
1968	713,400	119,883	97,966	931,249
1970	715,806	124,050	101,615	941,471
1972	659,418	124,142	94,459	878,019
1974	642,431	130,326	91,341	864,098
1976	628,567	137,909	85,893	852,369
1978	616,020	136,342	78,873	831,235
1980	627,174	139,944	78,165	845,283
1982	636,864	139,939	71,053	847,856
1984	573,991	134,680	52,694	761,365
1986	466,252	117,845	40,395	624,492
1988	536,737	119,606	41,586	697,929
1990	564,809	125,300	42,658	732,767
1992	608,636	135,166	47,488	791,290
1994	653,370	146,915	53,457	853,742
1996	656,598	144,416	56,673	857,687
1998	658,390	132,817	54,053	845,260
1999	--	121,258	--	--
2000	665,529	118,145	48,601	832,275
2002	648,806	105,488	43,009	797,303

ACREAGE CHANGE BETWEEN SURVEYS

The total tree inventory by year set as indicated in the censuses of 1984 to 2002 is shown on page 115. The 2002 census indicates that only 214,478 acres (28.2 percent) remain from the 761,365 reported in the 1984 census. The gross acreage decline in the past two years is 9.3 percent of the 2000 inventory.

FLORIDA COMMERCIAL CITRUS ACREAGE: CHANGES BETWEEN CENSUS

Census year	Two year change		Net changes	Total
	Gross loss	New plantings		
(First census via aerial photography)				
1966				858,082
1968	13,910	87,077	+73,167	931,249
1970	26,114	36,336	+10,222	941,471
1972 ^{1/}	82,948	19,496	-63,452	878,019
1974	40,181	26,260	-13,921	864,098
1976	40,518	28,789	-11,729	852,369
1978 ^{1/}	49,127	27,993	-21,134	831,235
1980	25,925	39,973	+14,048	845,283
1982 ^{1/}	51,942	54,515	+2,573	847,856
1984 ^{1/}	159,719	73,228	-86,491	761,365
1986 ^{1/}	185,598	48,725	-136,873	624,492
1988	52,240	125,677	+73,437	697,929
1990 ^{1/}	85,858	120,696	+34,838	732,767
1992	74,704	133,227	+58,523	791,290
1994	45,214	107,666	+62,452	853,742
1996	35,947	39,892	+3,945	857,687
1998	49,325	36,898	-12,427	845,260
2000	59,516	46,531	-12,985	832,275
2002	77,197	42,225	-34,972	797,303

^{1/} January freezes in 1971, 1977, 1981, 1982, 1985, and 1986. December freezes in 1983, 1985, and 1989.

SURVEY HISTORY

This publication presents the results of the 19th biennial survey of Florida citrus trees using aerial photography. The use of aerial photography and photo interpretation provides for more rapid completion of the survey than with other methods; even then, about eight months of intensive effort is required to process and review photographs. Changes in groves are detected by comparative photo interpretation, followed by field checking of new and altered acreage. Changes disclosed on photographs and in field observations are used to update the previous inventory. This technology provides current tree inventory data for evaluating Florida's potential citrus production within a shorter period of time and at less cost than by ground survey methods alone.

The Florida Agricultural Statistics Service first began indexing citrus groves on aerial photography with the January 1966 survey. The 1966 inventory report included detailed data by county, variety, and year set; and the survey was designed for quick and economical updating. Subsequent surveys, using aerial photography, were conducted as of January every two years including the latest for 2002.

AERIAL PHOTOGRAPHY

The same three-mile wide flight lines established for the January 1966 survey were photographed on each of the succeeding flights. Some additional coverage has been added as citrus acreage has extended farther south. The area, photographed at a scale of 1 inch to 2,500 feet, now covers almost 14,000 square miles and includes more than 99 percent of the commercial citrus acreage in Florida. Photographing for the latest survey began the first of November 2001 and was completed by the end of January 2002.

NON-PHOTOGRAPHED AREAS

Flight lines are laid out for maximum grove coverage at minimum cost. Since it is not economically feasible to photograph the few hundred scattered acres of outlying citrus, supplemental photography has been purchased, where available. In the absence of photography, the outlying acreage was mapped and thoroughly checked by ground survey teams.

PHOTO INTERPRETATION

Stereoscopic viewers enabled interpreters to examine current and previous photo contact prints simultaneously to detect changes occurring during 2000 and 2001. Altered ground characteristics result in a loss of the three-dimensional effect, making such changes as new groves, additions to existing groves, pushed groves, and other significant alterations quickly identifiable. In addition to stereo examination, a light table was used to visually compare replacement cronaflex enlargements with the previous master transparencies on which groves are delineated. Questionable observations were verified by field inspection.

FIELD INSPECTION

On January 7, 2002, field crews began ground checking sites that had been questioned by photo interpreters on the new photography. All blocks showing changes since the 2000 flight were visited. Crews also identified varieties in blocks where trees were too young to be identified in earlier surveys. Field work was completed the second week of July.

GROVE INDEXING

Following field inspection, photo interpreters delineated and indexed all new citrus groves and grove changes by variety blocks on cronaflex enlargements of aerial photographs. Digital planimeters were used to measure acres of new and altered citrus groves. Acres were computed from the combination of tree numbers and tree spacings as measured by field personnel. All statistical information (variety, year set, acreage, tree numbers, and identifying features) was then keyed into a data base and retained for future use.

There are 184,950 data records identifying all variety blocks, which were summarized by computer and retained in electronic media for future updating.

COMMERCIAL GROVES, MINIMUM 50 TREES

The data in this report relate to commercial groves, those containing a minimum of 50 trees from which fruit is generally sold. In addition, the grove must have been cultivated and trees must show viable growth in the limb scaffold.

NET ACRES IN COMMERCIAL GROVES

The acreage shown is land which is actually planted with citrus trees. Bayheads, ponds, sinkholes, drainage canals, lateral and swale ditches, roads, turn rows, and wide middles were excluded. Where vacancies within a commercial grove were numerous, they were counted and acreage was then reduced to equivalent net acres of commercial trees. These groves will be revisited in subsequent censuses to determine acreage reset.

CHRONOLOGICAL AGE USED

Trees are listed by the calendar "year in which set," even though they may have been severely pruned. Grove managers' records were used, when available, to establish age. Age of young trees is estimated from both trunk circumference and tree height.

RESET TREES

The photo interpreters identify all groves where there appear to be new trees. These groves are then visited by ground crews. If field inspection finds a significant number of new trees, a count is made and the older trees or vacancies reduced accordingly. Based on this new count of trees, the measured block acreage is then divided among the ages of trees.

INTERSET AND MULTI RESET BLOCKS

In blocks of citrus which are interset, acreage is proportionate to the number of trees of each variety or age in the block. In the multi reset blocks, two or more resets are planted for each tree removed. Because of the variable distance between trees the spacing must be averaged. The spacing between rows in one direction remains constant for grove travel.

UNIDENTIFIED TREES

Identification of citrus varieties generally depends on the presence of fruit. Many young groves visited for the first time are indexed as unidentified until fruit is available for variety determination. Acreage and trees in this report listed as

"unidentified" will be resurveyed and classified by variety in the next census.

The unidentified trees and acres are listed by year set and by county under all Florida citrus. They are also included in the all orange and all grapefruit totals.

OTHER CITRUS

Data itemized under the heading of other citrus include minor types and varieties, such as Ponkans, Satsumas, unidentified mandarins, K-Early Citrus, unclassified citrus, kumquats, and pummelos.. They are not reported individually or by year set within county due to lack of space.

ZERO ACRES AND TREES

Variety totals were rounded to the nearest acre and one hundred trees. All item totals that fell below these parameters

were listed as zero. For this reason, users are cautioned that zero cells in the data tables could actually have a positive entry, but would be less than one half acre and below 50 trees.

PLANT INDUSTRY ASSISTANCE

The Division of Plant Industry supplied six trained citrus technologists with 4-wheel drive vehicles to work on the tree census field inspection team. Assistance was also provided by personnel from the Division of Fruit and Vegetables.

POST SURVEY TREE COUNTING

Resurveying is a continuing process between flights. Quality checks for accurate variety counts will be emphasized as well as the identification of the three year old plantings that are to be included in next year's objective count surveys. Also, all groves that had vacancies this past survey will be visited prior to the 2002 flight.

Density: Trees per Acre

